



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/593,424	01/18/2007	Rudolf Ritter	296414US2PCT	1265
23446 7590 02/09/2012 MCANDREWS HELD & MALLOY, LTD 500 WEST MADISON STREET SUITE 3400 CHICAGO, IL 60661				
EXAMINER PHAN, HAI				
ART UNIT 2614		PAPER NUMBER		
NOTIFICATION DATE 02/09/2012		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mhmpto@mcandrews-ip.com

Office Action Summary**Application No.**

10/593,424

Applicant(s)

RITTER ET AL.

Examiner

Hai Phan

Art Unit

2614

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 December 2011.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.
- 4) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 5) ☒ Claim(s) 27-64 is/are pending in the application.
- 5a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 6) ☐ Claim(s) ____ is/are allowed.
- 7) ☒ Claim(s) 27-64 is/are rejected.
- 8) ☐ Claim(s) ____ is/are objected to.
- 9) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 10) ☐ The specification is objected to by the Examiner.
- 11) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 12) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-853)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: ____
- Paper No(s)/Mail Date ____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 27-34, 37-38, 53 and 55-64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al (Pub No. WO 2004/016037; hereinafter referred to as Chen) in view of Gollmar et al (Patent 4,901,354; hereinafter referred to as Gollmar). Regarding claims 27-28, 53 and 55-56 Chen discloses a system for acoustical communication comprising an eyeglass frame (Fig. 1) having plurality of directionally dependent microphones (microphone arrays 1, 2, 3, 4) to capture voice signals of a

user (page 16, lines 10 and 20-23), a transmitter configured to transmit the captured voice signals (8, 9) to one or more external electronic devices (10).

Chen fails to teach a control module configured to adjust directional dependence of at least a first directionally dependent microphone of said plurality of directionally dependent microphones based on the voice signals captured by the first directionally dependent microphone and at least a second directionally dependent microphone wherein said second directionally dependent microphone is located on an ear engaging portion of said eyeglass frame for capturing bodily vibration sound waves.

However, Gollmar discloses a device for improving voice detection having main microphone for measuring voice, microphone for measuring ambient noise, and a contact microphone for capturing bodily vibration sound waves in combination with the main voice microphone (col. 2, lines 3-8). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the contact microphone as taught by Gollmar into the system of Chen so that ambient noise can be eliminated (Gollmar's col. 1, lines 61-68). Since it is a common knowledge that the eyeglass frame rests on the ears of the user via the ear engaging portion of the frame, one of ordinary skill in the art would recognize this common knowledge to place the second microphone on the ear engaging portion so it can contact the human body.

Regarding claims 29 and 57, Chen further discloses a third microphone for capturing ambient noise (page 6, lines 15-16; Fig. 2, mini-microphones 101, 102), the signal captured by the first microphone is filtered by filter (Fig. 2, elements 110A, 110B), and the signal received from the first microphone is improved by the ambient noise

received from the third microphone (via active noise control circuits 107A and 107B of Fig. 2).

Regarding claims 30 and 58, Chen further discloses (in Fig. 6) an amplifier (601 or 606) controllable by the signal captured by a third microphone (101).

Regarding claims 31 and 59, Chen further discloses that the signal captured by the microphone is processable based on reference filters (LPF as part of 112 in Fig. 2 and/or filter process of filters 110A and 110B; see also page 21, lines 14-16 and 25-16).

Regarding claims 32 and 60, Chen further discloses that the at least one directionally dependent microphone is implemented as at least one microphone array (microphone array 15 of Fig. 2; see 10, line 20).

Regarding claims 33 and 61, Chen further discloses that the microphone array is implemented in MEMS technology (page 15, lines 1-4).

Regarding claims 34 and 62, Chen further discloses that the external devices could be one of the various mobile devices including phone, radio, CD player, etc. (page 25, lines 2-4).

Regarding claims 37-38 and 63-64, the combination Chen and Gollmar fails to teach the speech recognition module for capturing spoken commands and the Bluetooth, or ZigBee, GSM, or UMTS interfaces. However, the Examiner takes Official Notice, which is now considered admitted prior art since the Applicant has not challenged the Official Notice used in the prior office action, that speech recognition module for capturing spoken commands and the various claimed communications interfaces are very well-known in the art. Therefore, it would have been obvious to a

person of ordinary skill in the art at the time the invention was made to incorporate the speech recognition module into the combined system of Chen and Gollmar so that certain functions can be conveniently carried out without physical manipulation, and to utilize one of the well-known interfaces into the system of Chen and Gollmar's depending on the network and/or device the system is to be connected so that compatibility can be achieved.

4. Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Gollmar as applied to claims 27-34, 37-38, 53 and 55-64 above, and further in view Butler et al (Patent US 6,474,816).

Regarding claim 35, the combination of Chen and Gollmar fails to teach the eyeglass frame comprises means for retinal scanning display. However, Butler et al teach an integrated retinal display mounted on the eyeglasses comprising means for retinal scanning display (see Fig. 1; col. 2, lines 23-34). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the means for retinal scanning display as taught by Butler et al into the combined system of Chen and Gollmar's because this would allow the user to be able to view video display along with voice communication via an eyeglasses; thus avoiding additional external display device.

5. Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Gollmar and Butler et al as applied to claim 35 above, and further in view of Nestorovic et al (Pub No. US 2004/0155186).

The combination of Chen, Gollmar and Butler et al fails to teach a direction module which is configured to capture a direction of view. However, Nestorovic et al teach a direction module for capturing a direction of view used in the retinal scanning display (gaze tracker for detecting the gaze direction of the viewer so the image information is produced in response to the determined viewing direction; para 0031, claim 61, claim 77). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the direction module for capturing a direction of view as taught by Nestorovic et al into the combined system of Chen, Gollmar and Butler et al's so that desired image can be provided in accordance with the user's direction of view.

6. Claim 39-40, 42-47 and 50-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Gollmar as applied to claims 27-34, 37-38, 53 and 55-64 above, and further in view in view of Warren (Patent 7,013,009).

Regarding claim 39, the combination of Chen and Gollmar fails to teach the photovoltaic cells for a power supply. However, Warren teach an eyeglasses with wireless communication features mounted thereon where photovoltaic cells is used as power supply (col. 5, lines 32-33). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use photovoltaic cells for a

power supply as taught by Warren as a power source for Chen and Gollmar's system because this conventional battery is well-known in the art for use in electronic devices and is readily available in the market.

Regarding claims 40-41 and 42-47, Chen and Gollmar's system as discussed in rejecting claims 27 and 29-34 above fully support the steps and functions of these method claims except that Chen uses a wired interface rather than the wireless interface for communicating with the external device. However, Warren teaches a wireless communication interface between the circuitry on the eyeglasses frame to the external device (see Fig. 1 and abstract, lines 1-4). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to substitute wired communication of Chen and Gollmar's system with wireless interface of Warren's because wireless communication eliminates the messy wire(s) required by the wired communication.

Regarding claim 51, the combined method of Chen, Gollmar and Warren's further discloses Bluetooth interface for transmitting captured signals to the external device (col. 4, lines 65).

Regarding claim 52, the combined method of Chen, Gollmar and Warren's further discloses photovoltaic cells is used as power supply (see Warren's col. 5, lines 32-33).

Regarding claim 50, the combination of Chen, Gollmar and Warren's fails to teach the capturing of spoken commands by a speech recognition module and the Bluetooth. However, the Examiner takes Official Notice, which is now considered

admitted prior art since the Applicant has not challenged the Official Notice used in the prior office action, that speech recognition module for capturing spoken commands is very well-known in the art. Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the capturing spoken commands by speech recognition module into the combined method of Chen, Gollmar and Warren's so that certain functions can be conveniently carried out without physical manipulation.

7. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Gollmar and Warren as applied to claim 40 above, and further in view of Butler et al (Patent US 6,474,816).

Regarding claim 48, the combination of Chen, Gollmar and Warren fails to teach wherein the user has image data projected onto the retina using a retinal scanning display. However, Butler et al teach an integrated retinal display mounted on the eyeglasses comprising means for retinal scanning display (see Fig. 1; col. 2, lines 23-34). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the means for retinal scanning display as taught by Butler et al into the combined method of Chen, Gollmar and Warren's because this would allow the user to be able to view video display along with voice communication via an eyeglasses; thus avoiding additional external display device.

8. Claim 49 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Gollmar, Warren and Butler et al as applied to claim 48 above, and further in view of Nestorovic et al (Pub No. US 2004/0155186).

Regarding claim 49, the combination of Chen, Gollmar, Warren and Butler et al fails to teach wherein a direction of view of the user is captured by a module. However, Nestorovic et al teach capturing a direction of view used in the retinal scanning display (gaze tracker for detecting the gaze direction of the viewer so the image information is produced in response to the determined viewing direction; para 0031, claim 61, claim 77). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the capturing a direction of view as taught by Nestorovic et al into the combined method of Chen, Gollmar, Warren and Butler et al's so that desired image can be provided in accordance with the user's direction of view.

9. Claim 54 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen in view of Gollmar as applied to claim 27 above, and further in view of Addeo et al (Patent 5,335,011; hereinafter referred to as Addeo).

Regarding claim 54, the combination of Chen and Gollmar fails to teach a control module configured to dynamically adjust the position of at least one directionally dependent microphone based on the voice signals captured by the second directionally dependent microphone. However, Addeo discloses a teleconference system where plurality of self-steering directional microphones are arranged to pick up voice signals

from various places in the conference room, which upon detecting the source of sound by at least of those microphones, the microphones are dynamically controlled to steer toward the zone containing the source of sound to form a highly directional beam (col. 3, lines 6-26; col. 4, line 60 to col. 5, line 51). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to incorporate the dynamic adjusting of microphone's position based on direction of sound as taught by Addeo into the combined system of Chen and Gollmar's because this would improve audio quality by reducing ambient noise (Addeo's col. 5, lines 47-50).

Response to Arguments

10. Applicant's arguments filed 12/15/2011 have been fully considered but they are not persuasive.

Applicant argues that the combination of Chen and Gollmar fails to disclose "a transmitter configured to transmit said one or more captured voice signals to one or more external electronic devices as recited in claim 27 (see Applicant's remarks in the paragraph joining page 12 and page 13). However, it is clearly that Chen discloses that the audio signal captured by the microphones (Fig. 2, elements 101, 102) is transduced the sounds into signals supplied to an active noise control circuit (107A, 107B) of the external electronic device (10) via connectors (8, 9 as shown in Fig. 1). In other words, the audio-to-electrical transducer acts as the claimed transmitter (see also page 17, lines 13-21). Without any kind of transmission mechanism, the captured audio signals cannot be fed to the external device 10. It is further noted that this feature is very well-

known in the art, as the captured audio signals by the microphones must be transmitted to another circuitry for further processing that even the Applicant did disclose in the background of the invention of the instant application (see instant application's page 2, lines 15-19).

Applicant further argues that the combination of Chen and Gollmar does not teach "an eyeglass frame having a plurality of directional dependent microphones to capture one or more voice signals" by emphasizing that Chen's array of microphones across temple bars of an eyeglass with beam-forming capability in the front-facing microphones to exclude sounds from other directions (see Applicant's remarks on second paragraph on page 13). First of all, Applicant states that Chen's microphones have beam-forming capability and then concluded that it is not the same as directionally dependent microphones as claimed without providing reasonable explanation that they are different rather than pointing out the term used in the claimed is different than the term used by Chen. However, the Examiner would like to point out that they are the same as follows: Applicant's claimed "directional dependent microphones", at best, can be interpreted as microphones that are dependent on direction, or directional microphones. Chen's microphone uses beam-forming characteristics to directly pick up sound in the direction that is desired while steering away from the sound that is not wanted, and the microphone can also be directed to pick up user's own voice/speech (see page 8, lines 13-18). In other words, each of Chen's microphones is capable of picking up sound in the directed direction with the help of the beam-forming characteristic in the microphone. Thus, Chen's microphones are functionally equivalent

as the recited "directionally dependent microphones" in the claims. Chen further teaches a different microphone for picking up ambient sound in the region of the user's ear, and with the functionality of the active noise control, can be used to remove unwanted noise in the direction of unwanted signal (page 8, lines 22-27). It is further shown by Chen that the eyeglass frame comprises the plurality of directional dependent microphones (Fig. 1, microphones 1-4).

Applicant further argues that combining Chen with Gollmar or any other microphone references related to capturing bodily vibration sound waves, is improper, as this combination teaches away from the objective of Chen, namely a hearing aid device (see Applicant's remark on paragraph bridging page 13 and 14). First of all, Chen's invention is not limited to just a hearing aid device as suggested by the Applicant (where Chen discusses that it can be adapted to be used for a hearing aid on page 9, lines 26-6-32). Chen's invention also directs to the ambient noise cancellation (page 6, lines 15-16 and lines 28-33 and page 7, lines 8-11), audio system (page 6, lines 22-23 and page 9, lines 14-16), earphones (page 6, lines 5-10 and page 7, lines 29-30), hearing protection (page 8, lines 1-5), a device with improved speech intelligibility in a noisy environment (page 10, lines 7-9). Chen is not actually teaching away as Chen also discusses using microphones near the user's ear which will be used for active noise cancellation (page 8, lines 22-25). Therefore, Chen's invention is geared toward the same approach as the claimed invention, i.e. to detect where the direction of wanted source and then use active noise control to remove other unwanted sources detected from the other microphone(s) to improve. The teaching of Gollmar's second

directionally dependent microphone locating on an ear engaging portion of the eyeglass frame for capturing bodily vibration sound waves is to indicate the detection of sound coming from the direction of the user's mount. This is another way to more precisely detecting that sound is coming from the user himself rather than from the other speakers away from the user. If sound is picked up by other directional microphones but not by the contact microphone, then the system would correctly decide that wanted sound would be from other speaker(s), not the user. Thus, ambient sound around the user's head/mouth can be eliminated if it is certain that the user is not speaking.

Applicant further argues that there is no teaching in Chen or Gollmar that the second microphone in contact with the human body via the ear engaging portion, and that the Examiner's "common knowledge" statement is a conclusory statement and if it is a common knowledge then Gollmar would have disclosed it (see Applicant's remarks page 14, second paragraph). First of all, Applicant should view Examiner's "common knowledge" statement in view of the combination of Chen and Gollmar. When Gollmar is combined with Chen, we would have an eyeglass frame with the mounted contact microphone. If a contact microphone on the eyeglasses need to be in direct contact with human body, it would be recognized by one of ordinary skill in the art that it would be disposed in either (1) the nose resting portion of the frame or (2) in the ear engaging portion of the frame, and as the bones around the ears conduct sound as the user speaks, thus allowing the contact microphone be placed on the ear engaging portion of the frame would be the better and obvious choice to pick up bodily vibration sounds.

With the explanations above, the Examiner believes that the rejection of claims under the combination of Chen and Gollmar is proper.

Regarding claim 40, Applicant further argues that the combination of Chen, Gollmar and Warren fails to teach "adjusting, via a control module, directional dependence of at least a first directional dependent microphone" (see Applicant remarks in the last paragraph of page 16). However, Chen discloses that the beam-former circuitry is controllable (page 8, lines 8) and is self-adaptive (page 8, line 20); thus, Chen teaches the claimed step of adjusting.

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hai Phan whose telephone number is (571) 272-6338. The examiner can normally be reached on Monday-Friday (9:00AM-5:30PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Curtis Kuntz can be reached on 571-272-7499. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Hai Phan/
Primary Examiner, Art Unit 2614